

CLAIMS

1 1. (Original) A communications system having multiple access channels, access mode
2 control and a channel allocator for a communication network, said communications system
3 further comprising,

4 a dynamic allocation unit for controlling allocation of channels to communication units
5 to enable communications units to share channels, said dynamic allocation unit having,

means for specifying a reservation set for reserving channel assignments,

means for specifying an allocation set for receiving said channel assignments,

means for controlling the reservation set and the allocation set based upon system parameters.

1 2. (Original) The communications system of Claim 1 wherein said communications
2 network operates with PDCH channels formed of radio blocks wherein,

said reservation set is one or more radio downlink blocks of a PDCH channel, and

said allocation set is one or more radio blocks of an uplink PDCH channel.

3. (Original) The communications system of Claim 2 wherein said reservation set is a single downlink radio block of a PDCH multiframe.

4. (Original) The communications system of Claim 3 wherein said allocation set

includes 11 consecutive uplink blocks of a current multiframe and an uplink block of a next multiframe after said single downlink radio block.

5. (Original) The communications system of Claim 2 wherein said PDCH channels have multiframe of sequential radio blocks denominated B0, B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11 wherein said reservation set is a downlink B0 block and said allocation set includes uplink blocks B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11 of a current multiframe and uplink block B0 of a next multiframe.

1

2 6. (Original) The communications system of Claim 2 wherein said PDCH channels
3 have multiframe of sequential radio blocks denominated B0, B1, B2, B3, B4, B5, B6, B7, B8,
4 B9, B10, B11 wherein said reservation set is downlink B0, B4 and B8 and said allocation set
5 includes a first uplink block group B1, B2, B3, B4, a second uplink block group B5, B6, B7, B8,
6 and a third uplink block group B9, B10, B11 and uplink block B0 of a next multiframe where
7 downlink block B0 allocates for the first block group, where downlink block B4 allocates for the
8 second block group and where block downlink B8 allocates for the third block group.

1

2 7. (Original) The communications system of Claim 2 wherein said PDCH channels
3 have multiframe of sequential radio blocks denominated B0, B1, B2, B3, B4, B5, B6, B7, B8,
4 B9, B10, B11 wherein said reservation set is downlink blocks B0 and B6 and said allocation set
5 includes a first uplink block group B1, B2, B3, B4, B5 and B6 and a second uplink block group
6 B7, B8, B9, B10, B11 and uplink block B0 of a next multiframe where downlink block B0
7 allocates for the first block group and where downlink block B6 allocates for the second block
group.

1

2 8. (Original) The communications system of Claim 1 wherein said communications
3 network operates with PDCH channels formed of radio bursts wherein,
4 said reservation set is one or more radio bursts of a downlink PDCH channel, and
5 said allocation set is one or more radio bursts of an uplink PDCH channel.

1 9. (Original) The communications system of Claim 8 wherein said PDCH channels
2 have multiframe of sequential radio bursts denominated b0, b1, b2, ..., b51 wherein said
3 reservation set is downlink b0, b14, b28 and b42 bursts and said allocation set includes a first
4 uplink burst group b1, b2, ..., b12 and b14, a second uplink burst group b15, b16, ..., b26 and
5 b28, a third uplink burst group b29, b30, ..., b40 and b42 and a fourth uplink burst group b43,
6 b44, ..., b50 and b0 of a following multiframe where downlink burst b0 allocates for the first
7 uplink burst group, downlink burst b14 allocates for the second uplink burst group, downlink
8 burst b28 allocates for the third uplink burst group and downlink burst b42 allocates for the
9 fourth uplink burst group.

1 10. (Original) The communications system of Claim 1 wherein said communications
2 network operates with a common control channel and said reservation set and said allocation set
3 are transmitted on said common control channel.

1 11. (Original) The communications system of Claim 10 wherein said common control
2 channel is monitored by all of said communication units.

1 12. (Original) The communications system of Claim 11 wherein said common control
2 channel is a broadcast channel.

1 13. (Original) The communications system of Claim 11 wherein each one of said
2 communication units monitors the common control channel even when the common control
3 channel has a different carrier or time slot than assigned for PDCHs for said communications
4 units.

1 14. (Original) The communications system of Claim 1 wherein said communications
2 network operates with power control separately on said reservation set.

1 15. (Original) The communications system of Claim 1 wherein said communications
2 network operates with power control separately on said reservation set and on training sequence
3 bits independently of power control on data bits in each burst.

1 16. (Original) The communications system of Claim 1 wherein said communications
2 network operates with power control separately on said reservation set to target particular
3 communications units.

1 17. (Original) The communications system of Claim 16 wherein said communications
2 network operates with power control separately on said reservation set to target one particular
3 communications unit.

1 18. (Original) The communications system of Claim 1 wherein said communications
2 network operates with power control separately on said reservation set to target a particular
3 group of communications units in the same zone.

1 19. (Original) The communications system of Claim 18 wherein said particular group
2 of communications units is selected by a base station based upon the communications units
3 being in a hearing zone where the reservation set can be decoded without error.

1 20. (Original) The communications system of Claim 19 wherein said particular group
2 of communications units is dynamically changed by the base station to maintain the ability of the
3 communications units to decode the reservation set without error.

1 21. (Original) The communications system of Claim 1 wherein said communications
2 network uses the timing advance channel to transmit said reservation set.

1 22. (Original) The communications system of Claim 1 wherein said communications
2 network uses timing advance control channels to broadcast uplink radio block reservation
3 information for blocks.

1 23. (Original) The communications system of Claim 1 wherein said communications
2 network operates with PDCH channels formed of radio blocks wherein,
3 said reservation set is the B0 block of a downlink PDCH channel, and
4 said allocation set is one or more blocks of an uplink PDCH channel.

1 24. (Original) The communications system of Claim 23 wherein said B0 block contains
2 all the reservation set information for said allocation set.

1 25. (Original) The communications system of Claim 23 wherein the coding and power
2 levels on the B0 block are chosen such that a group of communication units can successfully
3 receive and decode the B0 block.

1 26. (Original) The communications system of Claim 25 wherein the transmit power
2 levels on blocks other than the B0 block are adjusted to reduce network wide interference.

1 27. (Original) The communications system of Claim 1 wherein said communications
2 network operates with PDCH channels formed of radio blocks wherein,
3 said reservation set is a single block of a downlink PDCH channel, and
4 said allocation set is one or more blocks of an uplink PDCH channel and
5 wherein said single block is distributed from multiframe to multiframe at pre-determined
6 different locations in order to spread interference across multiple blocks.

1 28. (Original) The communications system of Claim 1 wherein said communications
2 network operates with PDCH channels formed of blocks wherein sequential multi-frames are
3 distributed across interfering transmitters to reduce network-wide interference.

1 29. (Original) The communications system of Claim 1 wherein said communications
2 network operates with PDCH channels formed of blocks wherein reservation sets employ pseudo
3 dynamic allocation and fixed allocation.

1 30. (Original) The communications system of Claim 29 wherein said communications
2 network operates with PDCH channels formed of blocks wherein an initial uplink resource has a
3 fixed allocation for a specified set of multi-frames and has dynamic allocation for subsequent
4 multi-frames.

1 31. (Original) The communications system of Claim 30 wherein said specified set of
2 multi-frames is one multiframe.

1 32. (Original) The communications system of Claim 1 wherein said communications
2 network operates with PDCH channels formed of blocks wherein reservation sets employ pseudo
3 dynamic allocation.

1 33. (Original) The communications system of Claim 32 wherein said dynamic
2 allocation maintains cavities in allocation frames for initial fixed allocation.

1 34. (Original) The communications system of Claim 33 wherein said dynamic
2 allocation distributes said cavities over the multi-frame to reduce initial allocation delay.

1 35. (Original) The communications system of Claim 33 wherein said dynamic
2 allocation forces cavities in the multi-frame to provide for any new allocation requests occurring
3 before the end of the multi-frame.

1 36. (Original) The communications system of Claim 33 wherein said dynamic
2 allocation uses traffic profiles to determine cavity locations.

1 37. (Original) The communications system of Claim 33 wherein said dynamic
2 allocation distributes said cavities over the multi-frame to reduce initial allocation delay.

1 38. (Original) The communications system of Claim 33 wherein said dynamic
2 allocation forces a cavity multiframe to be populated with all cavities that are available for use as
3 a launching pad for new communication units with initial allocation delay requirements.

1 39. (Original) The communications system of Claim 38 wherein said dynamic
2 allocation reassgns communication units from the cavity multiframe to a different NEW_PDCH
3 using dynamic allocation.

1 40. (Original) The communications system of Claim 38 wherein said dynamic
2 allocation reassgns communication units between different types of PDCH's to balance network
3 load.

1 41. (Original) The communications system of Claim 38 wherein said dynamic
2 allocation reassgns communication units from the cavity multiframe to a different NEW_PDCH
3 using dynamic allocation.

1 42. (Original) The communications system of Claim 38 wherein said dynamic
2 allocation assigns the reservation set to a common control channel having a carrier or time slot
3 different than assigned for a PDCH channel and wherein said communication units monitor said
4 common control channel to obtain an allocation set.

1 43. (Original) The communications system of Claim 1 wherein said reservation set
2 occupies a portion of a block of a PDCH channel leaving a vacant portion of the block.

1 44. (Original) The communications system of Claim 2 wherein said reservation set
2 occupies a portion of a block of a PDCH channel leaving a vacant portion of said block.

1 45. (Original) The communications system of Claim 44 wherein said reservation set
2 occupies a portion of a block of a PDCH channel leaving a vacant portion of said block.

1 46. (Original) The communications system of Claim 44 wherein said vacant portion is
2 employed for a data channel.

1 47. (Original) The communications system of Claim 44 wherein said vacant portion is
2 employed for measurement control information.

1 48. (Original) The communications system of Claim 47 wherein said control
2 information includes the start and end of measurements.

1 49. (Original) The communications system of Claim 44 wherein said vacant portion is
2 employed for SMS and paging information.

1 50. (Original) The communications system of Claim 44 wherein said vacant portion is
2 employed for timing advance information.

1 51. (Original) The communications system of Claim 44 wherein said vacant portion is
2 employed for power control information.

1 52. (Original) The communications system of Claim 44 wherein said vacant portion is
2 employed for cell system information.

1 53. (Original) The communications system of Claim 44 wherein said vacant portion is
2 employed for macrodiversity information.

1 54. (Original) The communications system of Claim 44 wherein said vacant portion is
2 employed for multi-cast information.

1 55. (Original) The communications system of Claim 1 wherein said means for
2 controlling the reservation set and the allocation set operates to improve system performance
3 based upon said system parameters.

1 56. (Original) In a communications system having multiple access channels, access
2 mode control and a channel allocator for a communication network, said communications system
3 operating with the method comprising,

4 dynamically controlling allocation of channels to communication units to enable
5 communications units to share channels, said dynamic allocation including,

6 specifying a reservation set for reserving channel assignments,

7 specifying an allocation set for receiving said channel assignments

8 controlling the reservation set and the allocation set based upon system
9 parameters.

1 57. (Original) The communications system of Claim 56 wherein said dynamic
2 allocation includes controlling the reservation set and the allocation set to improve system
3 performance based upon system parameters.

1 58. (Original) The communications system of Claim 56 wherein said communications
2 network operates with PDCH channels formed of radio blocks wherein,
3 said reservation set is one or more radio blocks of a downlink PDCH channel, and
4 said allocation set is one or more radio blocks of an uplink PDCH channel.

1 59. (Original) The communications system of Claim 58 wherein said reservation set is
2 a single radio block of the PDCH channel.

1 60. (Original) The communications system of Claim 59 wherein said allocation set
2 includes consecutive blocks after said single radio block from one or more multiframe.